

1. Turn in Career Activity worksheet.
2. Write questions about Forces on whiteboard.
3. Write a definition of "Force."
4. List 10 scenarios where a force is 'happening.'

Forces :

- Definition → action that changes acceleration of an object
- Two main categories:
 - Contact Forces
 - Push
 - Pull
 - Any scenario where objects physically interact
 - Forces-at-a-Distance (Non-Contact)
 - Gravitational force
 - Electromagnetic force

- Newton's 2nd Law (the math...)

Net Force = (mass)(acceleration)

$$\vec{F} = m\vec{a}$$

units Newtons = (kg)(m/s²)
N

- Net Force:

- All the forces combined in a direction



$$= \vec{F_{\text{Net}}}$$

10 N

$$+20\text{ N} - 5\text{ N} - 5\text{ N} = 10\text{ N}$$

Practice #1:

$$\frac{\overline{F}}{m} = \frac{m\overline{a}}{m}$$

$$\begin{aligned} a &= \frac{F}{m} \\ &= \frac{15 \text{ N}}{58 \text{ kg}} \\ &= 0.26 \text{ m/s}^2 \end{aligned}$$

$$\overline{F} = 15 \text{ N right}$$

$$m = 58 \text{ kg}$$

$$\overline{a} = ? \text{ right}$$

Practice #2:

$$\frac{\overline{F}}{\overline{a}} = \frac{m\overline{a}}{\overline{a}}$$

$$\begin{aligned} m &= \frac{\overline{F}}{\overline{a}} \\ &= \frac{34 \text{ N right}}{4.0 \text{ m/s}^2 \text{ right}} \\ &= 8.5 \text{ kg} \end{aligned}$$

$$\overline{F} = 34 \text{ N right}$$

$$m = ?$$

$$\overline{a} = 4.0 \text{ m/s}^2 \text{ right}$$